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ABSTRACT

This paper reports a pilot study that examined the use of electronic mail and the World Wide Web for learning Japanese. Three college learners of Japanese at the intermediate to advanced levels and the researcher exchanged e-mail messages based on selected materials on the Web during a 15-week semester. Analyses of e-mail messages, interview transcripts, and responses to a questionnaire showed several possible advantages to learning Japanese with online assistance, such as autonomous learning and more opportunities to practice Japanese in authentic communication situations. On the other hand, such obstacles as difficulty in typing in Japanese and absence of nonverbal cues were also found. The paper concludes that the same properties of the Internet applications may cause both educational advantages and obstacles. Although such findings caution that Internet applications are not panaceas for problems that teachers and learners of Japanese often face, many educational advantages imply that the Internet applications can serve to enhance instruction and learning. Three appendixes contain a list of the URLs used for e-mail discussion in the study, the questionnaire, and interview questions. (Contains 27 references.) (SM)

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Educational Advantages, Obstacles, and Implications: A Preliminary Study of Students' Accounts of Using Internet Applications for Japanese Language Learning

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Abstract

This paper reports the results of a pilot study that examined the use of electronic mail and the World Wide Web for learning Japanese. Three learners of Japanese at the intermediate to advanced levels and the researcher exchanged e-mail messages based on selected materials on the Web during a 15-week semester. Analyses of e-mail messages, interview transcripts, and responses to a questionnaire showed several possible advantages, such as more opportunities to practice Japanese in authentic communication. On the other hand, such obstacles as the difficulty in typing were also found. In conclusion, it is suggested that the same properties of the Internet applications may cause both educational advantages and obstacles found in this study. Although such findings caution us that Internet applications are not panaceas for problems that teachers and learners of Japanese often face, many educational advantages imply that the Internet applications can serve to enhance of instruction and learning. Furthermore, current obstacles will be overcome with rapid advancement of computer technologies in the near future.

Background

Many educators and learners of foreign languages have been increasingly interested in the uses of technology in the past few decades. Particularly, Internet applications such as the World Wide Web (the Web) and electronic mail (e-mail) have drawn educators' attention. Researchers suggest that the Web provides foreign language learners with easier access to authentic materials aimed at native speakers of their target languages and that e-mail enables them to communicate with others in target languages beyond classroom settings. (Ady, 1999; Gonglewski, 1999; Kern, 1998; Kost, 1999; Walz, 1998).

These educational advantages can be brought to learners of Japanese in the United States. Chikamatsu (1998, p. 119) lists six advantages of using the Internet, particularly e-mail, for Japanese language learning: 1) e-mail provides opportunities to practice for learners who often lack exposure to the Japanese language and culture, 2) it allows them to practice writing in Japanese which is often less emphasized in the classroom due to time constraints, 3) it enables them to engage in authentic and meaningful interaction, 4) it makes writing enjoyable to them, 5) it gives them a chance to practice typing in Japanese, which may be useful in the future, and finally 6) it provides them with an opportunity to gain knowledge and understanding of Japanese culture and society through interacting with Japanese native speakers.

Although the Internet can be beneficial to Japanese learners as described above, it may create some potential obstacles. Japanese orthographic systems appear to be one of the main sources of these obstacles. Japanese is a non-alphabet language that uses three different orthographic systems: two syllabaries (*hiragana* and *katakana*) and *kanji* or Chinese characters. Sumimy (1994) maintains that orthographic differences may provoke a higher anxiety among learners of Japanese, particularly when their native languages are alphabetic languages like

English.

Further, the complications of the three writing systems result in some technical problems. Because Japanese uses ideographs, typing in Japanese involves complicated steps as described in Kubota (1999): "mapping sounds to syllabic symbols (*hiragana* or *katakana*), converting some *hiragana* into appropriate ideographs (*kanji*) according to the context, and altering the word boundaries if the automatic *hiragana*-to-*kanji* conversion resulted in inappropriate parsing" (p. 206). In addition, the writer needs to choose correct sets of *kanji* when there is more than one option. Kubota (1999) claims that these steps are challenging and time-consuming to Japanese learners whose native languages use phonetic scripts, such as English. The use of Internet applications, particularly for communication purposes, involves typing. Therefore, the complications of the Japanese input method could create a potential obstacle related to writing, although previous studies in alphabet languages indicate that the use of computers for communication can benefit learners by alleviating anxiety stemming from speaking in the target language in front of people (Beauvois, 1999).

The present study is an initial look at the feasibility of using the Internet, namely the Web and e-mail, for Japanese language learning by examining how the learners perceive advantages and disadvantages of these new technologies for their experience in learning Japanese. In what follows, I first give an overview of this study, including the participants' profiles and detailed procedures of the study. Then, I present and discuss the results of the analysis of e-mail messages, interviews, and responses to a questionnaire. In the final section, I summarize the results and draw conclusions regarding educational advantages and obstacles of the use of Internet applications for Japanese language learning.

A Study of the Web and E-mail for Japanese Learning at Intermediate and Advanced Levels

Objectives of the Study

This study included group discussions using the Web and e-mail. These discussions were not a part of the course in which participants were enrolled. The Internet-based activities in this preliminary study were designed in an attempt to answer these research questions: 1) What are the potential benefits of the use of the Web and e-mail for Japanese language learning? 2) What are the potential obstacles of the use of the Web and e-mail for Japanese language learning?

Setting and Participants

Participants.

The participants in the present study were three Japanese learners who were recruited from a fourth-year Japanese course at a Midwestern university in Fall 2000. From a class of 10 students, three students, Allison, Jeff, and Nina (pseudonyms) volunteered to participate. They were all native speakers of English. Allison and Jeff were new to the university and placed to the course by taking the departmental placement test. Nina was a continuing student who had successfully finished the third-year course. Their profiles are shown in Table 1.

Table 1

Participant Profiles

	Allison	Jeff	Nina
Year in College	Freshman	Graduate student	Graduate student
Age	19	26	27
Major	East Asian Studies	History	East Asian Studies
Proficiency Level[1]	Advanced	Advanced	Intermediate-High
Previous	- studied with a	- studied in an	- studied in an

Experience in Japanese Study	- computer program - studied in an intensive summer program	intensive Japanese program offered by his religious sect	undergraduate program at college for two years
Previous Experience in Living in Japan	- lived in the western part of Japan for about one year as an exchange student	- lived in various regions of Japan for two years as a missionary	- lived in the western part of Japan for three and half years as an English teacher
Previous Experience in Japanese Computing	- used a computer program to study Japanese - often sends e-mail in Japanese to friends - uses the Web often, including reading newspapers.	- writes essays in Japanese with a word processor - often sends e-mail in Japanese to friends - uses the Web often, (e.g., read newspapers, use online dictionaries, search for books)	- wrote essays in Japanese with a word processor

Table 1 indicates important differences between Nina and the two other participants, despite the fact that they shared similarities in background experiences such as living in Japan. At the beginning of the study, Nina was less familiar with using computers in Japanese than Allison and Jeff. She had never written to friends in Japanese through email, and she had not used the Web for accessing Japanese information as Allison and Jeff had. Additionally, Nina's proficiency level was judged to be lower than the two other participants. I noted that these differences were critical and should be taken into consideration when analyzing data.

Role of the researcher.

In the present study, I played the role of researcher and facilitator of the group discussions. As a researcher, I planned the procedures of the e-mail discussions and collected data as described below. In the e-mail discussions, as a facilitator, I started each discussion by

introducing materials available on the Web and facilitated the discussion by asking questions whenever necessary.

Procedures of e-mail discussion.

For the purpose of the study, the participants were engaged in group discussions in Japanese using e-mail from September to November, 2000. As a facilitator, I also took part in the electronic discussions. First, the participants were introduced to resources on the Web such as Japanese newspaper articles. I chose topics based on the participants' background information obtained from the first interview and questionnaire. In so doing, I attempted to make the topics interesting enough to sustain the participants' attention and engagement in the discussion.

The participants exchanged their opinions about the Web resources by sending e-mail messages to the distribution list. Using the Majordomo system offered at the university at which this study was conducted, I set up a distribution list that allowed all the participants both to send messages and to receive others' messages. No specific instructions were given about how to discuss the materials introduced to the participants. Generally, I asked a few questions at the beginning of the topic introduction, and the participants responded to them. Their responses as well as my responses to others' messages followed as the discussions went on. Table 2 presents the topics discussed during this study with the total number of messages sent by the participants for each topic.

Table 2

Topics discussed during this study

Date	Topic	Materials introduced[2]	Total number of messages by participants
Sept. 17 – Oct. 1	Self-introduction		4
Oct. 2 – 14	Compare two online dictionaries	- *Rikai* - Reading Tutor[3]	7
Oct. 15 – 29	*Shanai kekkon* 'intra-office wedding'	- Five newspaper articles about *shanai kekkon* in *Asahi Shimbun*	7
Oct. 30 – Nov. 12	*Wakamono kotoba* 'youth language'	- One newspaper article about language changes in *Yomiuri Shimbun* - List of *wakamono kotoba*	3
Nov. 13 – 26	Online radio stations and history museum	- National Museum of Japanese History - KEATON Live Guide	4

As for electronic equipment, Jeff and Allison mainly used their own Japanese-capable computers (Windows with Global IME[4]), whereas Nina used Macintosh computers in on-campus computer laboratories because her home computer could not handle Japanese. To make access to Japanese e-mail easier, the participants used a free Web-based e-mail service called Hotmail (http://www.hotmail.com).

Data Collection

The research methodology of this study was descriptive, and the investigation relied on data collected from three different sources: e-mail messages exchanged in the group discussions, nine semi-structured interviews with the participants, and a questionnaire about attitudes toward the use of computer technologies such as e-mail for Japanese language learning. Data collection

methods were varied for the purpose of triangulation.

E-mail messages.

The first data set consists of e-mail messages exchanged following the procedures described in the previous section. The total number of the messages exchanged during the e-mail discussions was 46, 25 of which were by Allison, Jeff, and Nina. Out of 25, Allison sent eight, Jeff 14, and Nina three. On average, Allison wrote 521.6 characters per message, Jeff 337.4, and Nina 61.0.

Semi-structured interviews.

The second set of data was collected from semi-structured interviews with the participants. Each participant was interviewed three times during the data collection process in a 15-week semester (see Appendix C for sample questions asked during the interviews). Major questions were prepared in English prior to each interview, but follow-up questions were also incorporated depending on the participants' responses in the interviews.

The first interviews asked the participants about their previous experiences in learning Japanese and using computers, and the second and third interviews focused on their experience in using e-mail and the Web in this study. The first interviews took place between September 8 and 10 before actual e-mail discussion started, and the second between October 23 and 27 after two topics had been discussed. The last interview was conducted during the final week of the discussion between November 27 and 30. Each interview took about one hour. The participants were instructed to answer in whichever language, Japanese or English, they preferred. As a result, the interviews were conducted in both Japanese and English. All interviews were tape-recorded with the participants' permission and later transcribed.

Questionnaire.

The third set of data came from the questionnaire in an attempt to collect quantitative data to supplement qualitative data from the e-mail messages and the interviews. By administering the same questionnaire at the beginning and the end of the study, I also attempted to examine any differences in the participants' attitudes toward using computers for Japanese language learning before and after the e-mail discussions.

The questionnaire employed in this study was originally developed by Chikamatsu (1998) based on the one used in Warschauer's (1996) study with learners of English as a Second Language.[5] This questionnaire was adopted with some modifications so that it matched the context of this study. For example, Item 9 in Chikamatsu's (1998) questionnaire, "I enjoy using the computer in Japanese to communicate with my teacher(s)," was changed to "I *would* enjoy using the computer in Japanese to communicate with my teacher(s) ," because the participants did not communicate with their instructor for the purpose of this study.

The questionnaire consisted of three parts. The first part asked about background information such as a native language and self-rating of typing ability and computer knowledge. The second part contained 40 questions, which were answered on a five-point Likert scale, with 5 indicating "Strongly Agree" and 1 indicating "Strongly Disagree." Twenty questions were related to Japanese word processing and the use of computers for language learning. Ten questions asked about using computers for communication in Japanese, and five questions dealt with feelings about the use of Japanese computer or e-mail. The remaining questions were related to using computers in general. The last part of the questionnaire asked the participants to write their opinions about Japanese e-mail in terms of technical aspects as well as learning the Japanese language.

Data Analysis

For the analysis of e-mail messages, 25 messages sent by Allison, Jeff, and Nina were printed out and sorted based on the sender and chronological order. Then, the content of each message was closely examined and categorized into several themes that emerged in the process of data analysis. Transcripts of the semi-structured interviews were categorized in a similar manner. Categories constructed from the e-mail messages and the interview transcripts were compared and merged into refined emerging themes.

As for the questionnaire regarding attitudes toward using computers for Japanese learning, each participant's score on the first and second questionnaire was calculated with a higher score indicating more positive attitudes. When items were negatively worded, results were reversed. Then, each participant's ratings on the Likert scale were summed and divided by the total number of items, i.e., 40, to obtain the mean score for each participant. The mean score of all participants was calculated in the same manner. Items that generated larger than two-point differences between the first and second questionnaire were also examined in order to see changes in attitudes toward the use of computers for Japanese learning. No statistical analysis of significance was conducted due to the small number of the participants in this study. Finally, the participants' responses to the last part of the questionnaire were categorized and incorporated into emerging themes from the e-mail messages and the interviews.

After data analyses described above, member checks were conducted to construct trustworthiness of the findings. For member checks, I asked each participant to read written data analysis and to confirm if I had correctly interpreted the data.

Finding and Discussion

This section presents the findings of this study in conjunction with claims and results in existing literature. The first part of this section discusses emerging themes from the data in relation to the first research question, "What are potential benefits of the use of e-mail in combination with the Web for Japanese learning?" The second part attempts to answer the second research question, "What are potential obstacles of the use of e-mail in combination with the Web for Japanese learning?"

Educational Advantages: Positive Experiences in Using the Internet in Japanese

Previous studies have reported learners' positive attitudes toward the use of computer technologies such as Internet applications for foreign language learning. Similarly, overall reactions from the participants in this study were positive, as represented by Jeff's comment, "I think technology is useful for learning" (Jeff, Interview #3, Nov. 28). Results of the questionnaire also indicated the participants' positive opinions of technology usage. The mean score of the first administration was 3.93, and that of the second 3.87, and both were slightly higher than Chikamatsu's (1998) result of 3.606. Although no statistical significance was calculated due to the small sample size, they were greater than a neutral score 3.0, suggesting that the participants were in favor of the use of the Web and e-mail for their Japanese studies.

Such positive attitudes toward computer use for foreign language learning imply that the participants perceived that computer technologies, the Web and e-mail in the case of the present study, are beneficial for their Japanese language learning. Indeed, from their e-mail messages and responses in the interviews and the questionnaire, three possible educational advantages emerged: creating and enhancing connections to other speakers of Japanese, more opportunities to practice, and autonomous learning.

Creating and enhancing connections to other speakers of Japanese.

A significant aspect of learning a foreign language is that it allows learners to expand the circle of communication in which they can participate. In other words, communication in a foreign language enables the learners to share their experiences with and make connections to others who can also speak the target language. E-mail messages and interviews with learners of Japanese participating in the Internet enrichment experiences in this study revealed that these connections were being made by each of the participants. Their view of e-mail exchanges as communication emerged from their interviews in particular. In addition, the content of a few of their messages showed that they considered e-mail to be a communication tool that tied them to others.

All of the three participants claimed that they often use e-mail for communication purposes, and two of them said that they correspond with their Japanese friends in Japan and in the United States via e-mail. Allison said, "Actually, it has nothing to do with my Japanese proficiency, but [I e-mail] in order to talk with my friends. What I am doing is like ordinal letters" (Interview #1, Sept. 8; translated from Japanese). Jeff made a similar comment: "I think [e-mail] is more or less conversation. Because we are corresponding to each other" (Interview #3, Nov. 28; translated from Japanese).

These answers revealed that they use e-mail in general instead of writing a letter, perhaps because of its convenience such as quick responses and high accessibility. Their view of e-mail messages as a quicker and easier version of letters seemed to be reflected in the following messages:

> Everyone, hello!
> Did you spend a good weekend? I came home all weekend, but now I've returned to A [a town where her university is located]. The main reason I came home was that Japanese people were visiting there for a festival. My hometown is B, and we had our first sister

> city 10 years ago, and we do short-term exchange programs with C City, D Prefecture, Japan. To celebrate the 10th anniversary, they came only for three days, which I thought was too short but fun.
> They did drum and karate demonstrations, but one of the first-year junior high school students who were supposed to play the drums got injured by having her leg dragged by a tire of the float. Since there was no one who could speak Japanese, I got in the ambulance with her as an interpreter. That was my first experience getting in an ambulance. She got her leg broken in three places.
> (Allison's e-mail message of Oct. 8; translated from Japanese)

> My weekend wasn't particularly fun. I played with my daughter and studied. On Sunday, my daughter and I went for a walk to Lake E. There was a tree that fell in the lake, so we rode on the wood and played. I told her to go home because it was cold, but she didn't want to and gave me trouble. But when I said to her, "Let's bake cookies when we return home," she immediately got in the car, and we went home. Then, when we returned home, we baked peanut butter oatmeal cookies. Since my daughter is three years old, she must drop something and get dirty when she helps. But it was fun.
> (Jeff's e-mail message of Oct. 9; translated from Japanese)

These two messages appeared after the weekend when our discussion topic was Japanese dictionaries. While both messages contained remarks about the topic, which were omitted from the excerpts, more casual, personal topics such as weekend activities preceded the discussion. Allison started this exchange, and Jeff responded to it. These examples showed their view of e-mail as a letter or communication tool.

Sharing opinions with others through the e-mail discussion seems to have enhanced connections among the participants as well. Allison said, "Through this exchange, I can know various things, for the first time I can know, and there are links, and I get to know my classmates better, which is very good" (Interview #2, Oct. 23). Nina also stated, "Actually communicating with each other [is good]. Because we see each other every day in Japanese class and verbally we communicate. But if there is a topic, like in class we can discuss it" (Interview #3, Nov. 30).

The results of the questionnaire seemed to be congruent with the findings from the participants' e-mail messages and interviews. Allison's response to item 14, "Using Japanese e-mail and the Internet makes me feel part of a community," increased by two points. Nina's

response to item 26, "Computers keep people isolated from each other," shifted from 3 (Neutral) to 5 (Strongly Disagree). Subtle as they were, these changes implied that the participants perceived e-mail as a tool to make connections with people.

The participants' e-mail messages and interviews reveal that the Internet, e-mail in this case, allowed the participants to communicate and make connections with others. Because e-mail does not require physical co-presence, the participants perceive e-mail as an easier way of reaching out to their friends who are away from them, including their peers outside of the classroom. Such a connection between Japanese learners and others beyond classroom settings (e.g., native speakers of Japanese, learners of Japanese in different schools) can "extend the learning community beyond the confines of the classroom" and "open new avenues for learners to engage and practice their emerging communicative language skills with a real audience which go beyond those normally provided by the instructor and others in the class" (Van Handle & Cort, 1998, p. 130).

Similarly, the use of e-mail appears to help learners know more about their peers who are taking the same course and consequently contributes to strengthening ties among them. In his Portuguese class where college students used e-mail for communication, Kelm (1998) reported his observations that his students helped each other not only to solve computer problems, but also to complete assignments and do more language exercises via e-mail. This suggests that e-mail, as an additional medium for communication with peers outside of the classroom, allows more interaction with peers and possibly contributes to building a collaborative learning community within the classroom setting. This study's results also show the possibility that e-mail has an important educational benefit to Japanese learners in that it facilitates the development of a collaborative learning community.

More opportunities to practice.

If a target language is taught as a foreign language, learners often lack the opportunity to use the language outside of the classroom. Internet applications such as e-mail and the Web seem to offer a possible solution to this problem. The Web makes it quicker and easier for learners of Japanese outside of Japan to obtain authentic materials originally aimed at native speakers of Japanese. In addition, since information on the Web is constantly updated, the Web is excellent in allowing learners to practice reading with authentic materials in terms of freshness of information (Gonglewski, 1999; Walz, 1998). Allison underscored this point: "For instance, when you open a Japanese page and you're reading like, what Japanese write, it's like reinforcement. What I have been studying in class is used, so I can understand how to use it" (Interview #3, Nov. 27; translated from Japanese except for the first sentence). Although participating less actively than the two other participants, Nina also noticed this advantage of the Web: "Probably the Internet is the best [for us to] get any kind of information. [...] You can get it... with a click of the mouse" (Interview #3, Nov. 30).

Furthermore, e-mail enables learners to practice writing through communication with other speakers of Japanese as audiences who are interested in what they say. This advantage was well recognized by the participants, as represented by Jeff's comment: "[In e-mail] it's like I can do a conversation in Japanese. With regard to it, I think it is good for me. If I give you a reason, it is because I can practice, more or less, Japanese" (Interview #1 on Sept. 15; Translated from Japanese). Nina also showed her view of e-mailing as communication or exchanges of utterances in the following excerpt: "[I]f I email [my friends in Japanese]... they respond back, I respond back, and it will become a frequent thing that I do. And once it becomes a habit, then, the more you do it, the more you're gonna write, the more you gonna say, the better you gonna

get" (Interview #3, Nov. 30).

In other words, because the Web and e-mail are mostly text-based, they provide learners with more opportunities to practice reading and writing in Japanese than they usually have in traditional classrooms. Generally speaking, reading and writing are less emphasized than speaking and listening at the beginning and intermediate levels, but they become focused at the advanced level (Saito & Samimy, 1996). Saito and Samimy argue that such a shift in focus provokes advanced Japanese learners' anxiety. Internet applications appear to have the potential of assisting learners in this shift in the curriculum. A wide variety of texts in Japanese on the Web are probably more accessible and less expensive than obtaining hard copy reading materials (e.g., books, magazines), and thus the Web can be easily used for reading practice.

E-mail exchanges, as done in this study, also give learners a chance to practice informally and freely expressing their ideas in Japanese. Jeff remarked on this point in one of the interviews:

> [E-mail] enable[s] you to write your opinions out, instead of following a certain set pattern, like *sakubun* does. [...] [In *sakubun*] themes are decided, right? And I have to write 400 characters. [...] If it's e-mail, I can write more freely. [...] A sense of freedom? Instead of doing the ways that are already, also, I think I can learn naturally. [...] In e-mail, you also have a conversation with others, so I think it is an opportunity to tell your opinions and experiences and so on.
> (Interview #3, Nov. 28; translated from Japanese except for the first line)

This positive effect seemed to be partially attributable to the absence of time pressure and physical co-presence in computer-mediated communication (CMC) such as e-mail. In spoken communication, it is necessary to respond quickly in order to avoid gaps between utterances. However, learners with limited linguistic knowledge in the target language often find it difficult to react within short time, feeling intimidated. Their anxiety can be further heightened by fear of making mistakes and being embarrassed in front of others due to the lack of time to prepare a

response.

In e-mail, however, there are no such factors that possibly make the learners anxious and remain silent. Not only are they freed from others' eyes, but they also can spend as much time as they want until they are satisfied with their message (Kelm, 1998; Beauvois, 1999 for synchronous CMC). These characteristics of CMC appear to have the advantage of reducing anxiety associated with oral communication. This point was expressed by Allison and Nina:

> I think definitely you have more time to think about it. There are some people who get a little nervous when they are talked to suddenly, right? [...] But, also computers, as I said, you can have time to think, and I think it is really good there is no pressure to answer quickly. That is very relaxing.
> (Allison, Interview #3, Nov. 27; translated from Japanese except for the first sentence)

> Some people are more verbal, some people are more written. And I think those people who are verbal speak anyway in class. [...] [Those who prefer writing to speaking] would communicate more online because it's not necessarily that you're not showing your face and they don't know who you are. It might be the easiest way to express yourself. [...] People who are better at writing might say, "Oh, this would be really good way for me to say what I wanna say and get it out and have fun."
> (Nina, Interview #3, Nov. 30)

These views about CMC and its place in Japanese learning correspond to findings from the previous studies in foreign language learning (Beauvuois, 1999; González-Bueno, 1998; Kern, 1995, 1998) as well as asynchronous learning networks[6] in other disciplines (Wergerif, 1998). In his ethnographic study of the Teaching and Learning Online course, Wergerif (1998) found one of his students was more encouraged to participate in discussions because she could spend as much time to think as she needed. Based on her study about e-mail dialogue journals between the instructor and beginning-level Spanish learners, González-Bueno (1998) maintains that e-mail messaging gives learners the opportunity to communicate in Spanish without worrying about errors in front of others. Many previous studies claim that these advantages attributed to the characteristics of CMC result in more production in target languages and greater participation

in communication (Kelm, 1992; Beauvois 1994-5).

Autonomous learning.

In the past, a large part of foreign language learning was limited to what teachers and books could provide. However, the development of new tools such as the Internet, in addition to teachers and books, gives learners more choices and control in regard to how they learn a foreign language, allowing them to become autonomous learners. Dickinson (1987) points out that autonomous learners, with more control over their learning, tend to have more motivation and thus achieve higher than less autonomous learners.

Conacher and Royall (1998) define autonomous learners as "those placed in the position to identify what they wish to learn, how and when that learning will take place, and how they will monitor the success of their learning process" (p. 37). Among the three participants, Allison and Jeff seem close to this profile of autonomous learners. As indicated in Table 1, they showed extensive use of the Internet to learn Japanese outside of the classroom before participating in the present study. Allison made use of reading materials she obtained on the Web to improve her skills in Japanese:

> I can somehow remember grammar and new *kanji* I learned in class when I write repeatedly. It is troublesome that I don't know how to use it and I write it in my message. I am often told, "We don't use it like that," but when I open various pages on computer, I can read how those grammar and kanji are used. I learn a lot from that.
> (Interview #3, Nov. 27; translated from Japanese)

Jeff also indicates autonomous learning by using the Internet in his message:

> As for the dictionaries I'm using now, they are *Sanshoudou Daily Concise Japanese-English dictionary*, *Nelson Kanji-English dictionary*, and another online dictionary, Jim Breen Online dictionary. That online dictionary is at the same level as *Rikai*, but if you know how to read, you can look up *kanji* in it. Its URL is: http://www.dgs.monash.edu.au/~jwb/wwwjdic.html. It's very handy.
> (e-mail message of Oct. 7; translated from Japanese)

In addition, Allison and Jeff adopted a newly introduced online dictionary *Rikai* (which

means 'Understanding'), for their own learning afterwards, showing a sign as autonomous learners. In the message in which she compared two online dictionaries, Allison wrote, "Sometimes I surfed the Net and looked for such a Japanese site, but I couldn't find any as good as this one. [Researcher's name] san, thank you very much for teaching us about this site!" (on Oct. 3; translated from Japanese)

This message reveals Allison's previous attempts to utilize online dictionaries to learn Japanese independently and her excitement about finding a new tool that matches her needs. As a result, she said in the second interview that she started using *Rikai* when she did not understand content and vocabulary in Japanese Web pages for her Japanese study. Jeff also indicated that he used *Rikai* after it was introduced: "I've been using rikai.com a lot. 'Cause it's really nice. You just go to the Web site and you just go through there. [...] It's so much easier" (Interview #3, Nov. 28).

In contrast, the other participant Nina says, "I haven't done a lot [of using the Internet in Japanese]. Probably more English than Japanese. [...] 95% English and 5% Japanese" (Interview #3, Nov. 30). Her unfamiliarity with Internet applications as well as computing in Japanese may be reflected in the number and length of her messages: The total of three messages sent by Nina were much shorter and contained more typing mistakes than the others' messages.

In the interview, saying that she likes writing in Japanese the least, she repeatedly stated that typing in Japanese is challenging to her:

> As to *kanji*, I think about solely *kanji*, but I don't think about *roma-ji* (Japanese transcribed into the English alphabet) [reading] at all. I look at it, for example, *taberu* ['eat'] and see *kanji* of it. [...] I can say it and understand when it's said. But writing is hard. Long sound and short sound. When I say it, its spelling doesn't appear [in my head]. It doesn't. Only its *kanji* appears.
> (Interview #1, Sept. 10; translated from Japanese)

To put this differently, she is unfamiliar with spelling romanized Japanese so that typing

Japanese causes her a great difficulty. Nevertheless, she has perceptions about the use of computers similar to those of Allison and Jeff. After stating that the typical Japanese classroom is teacher-centered, Nina said:

> By using a computer, you do it yourself. [...] You still have more control of what YOU learn. So [the instructor] can tell you you have to write a paper or you have to do a test. So [the instructor] has control over the test, but in chatting or something else, you control what you say and how you say it. [In a Japanese class] you have a certain amount of control, but you have more control when it's all of your ideas coming out. So, you use different words, different phrases, or... build your *kanji* up. That's under your control to do on the Internet. The more you use it, the longer you can write, 'cause you learn how to do it first.
> (Interview #1, Sept. 10)

Such a positive perception is reflected in Nina's claim that she would be more interested in the use of computers to learn Japanese after participating in this study than before:

> First I thought it would be difficult being online, how am I supposed to do that? But when you showed it to me, very simple. [...] I thought having it set up was not difficult for anybody to do and it wouldn't be difficult for a class. [...] I think it would really work. [...] I think I'm gonna stick to the email. Once I get my computer I start email.
> (Interview #3, Nov. 30)

Despite little experience with the Internet applications in Japanese when compared to Allison and Jeff, she evaluated their usefulness highly and showed willingness to utilize them for her own Japanese learning. Nina's case implies that the use of Internet applications encourages learners to take steps toward becoming an autonomous learner.

Autonomy plays an important role in foreign language learning, not only because of its positive effects pointed out by Dickinson (1987), but also because of its relevancy to the ultimate goal of any kind of learning, i.e., becoming a life-long learner beyond educational settings such as schools. The National Standard for Japanese Language Learning (The Japanese National Standards Task Force, 1999) recognizes the importance of learner autonomy and encourages it under one of the area goals, "Communities." The findings of this study suggest that by providing

Japanese learners with additional support and resources to learn Japanese that go beyond traditional classroom instruction, the Web and e-mail facilitate autonomous learning, benefiting Japanese learners.

Obstacles: Negative Experiences in Using the Internet in Japanese

Thus far, I have presented and discussed educational advantages of the Internet for Japanese language learning based on the findings of this study. The three participants' experiences suggest that the Internet possibly benefits Japanese learners by increasing access to other speakers of Japanese, providing additional opportunities to practice using Japanese, and facilitating autonomous learning. Nevertheless, the participants' accounts also revealed some potential obstacles: Japanese input methods and *kanji* learning, absence of nonverbal cues, and insufficient corrective feedback. These emerging themes point to the need for a careful evaluation of effectiveness of Internet applications for Japanese language learning.

Japanese input methods and kanji learning.

The participants claimed that the use of computers helps them learn with *kanji* recognition, but not with *kanji* production. Pointing out the negative effect of computer use on *kanji* study, Nina said, "The disadvantage [of using computers] is probably writing. If you use a word processing program all the time, gradually, you can recognize *kanji*, but you probably forget stroke orders" (Interview #1, Sept. 10; translated from Japanese). Allison also stated, "[Using computers] influences writing... Because I forget [how to write *kanji*]... If I use only computers all the time, I think, "Which *kanji* is for *sentaku*?[7]" (Interview #2, Oct. 23; translated from Japanese).

Moreover, all three participants pointed out the complications associated with typing in Japanese, supporting Kubota's (1999) claim that Japanese input can be troublesome to learners.

For instance, changing *hiragana* to *kanji* appears to be problematic, as Jeff explained:

> What is troublesome, rather than saying difficult, is… when I type, I type in *roma-ji*, right? Then, if I don't press the space [key], no *kanji* come up, right? Then I also have to enter properly. […] Troublesome. Just typing in *roma-ji* first, then *hiragana* come up. And then unless I press the space [key], no *kanji* come up.
> (Interview #1, Sept. 18; translated from Japanese)

For Nina, as mentioned earlier, spelling Japanese words in *roma-ji* is an obstacle. Nina's messages contain more mistypings than those of the two other participants. For example, She wrote *yapari*, lacking an extra consonant 'p' for a geminate, instead of *yappari* 'as I expected,' in a message she sent on October 26. Coupled with responses in the interviews, Nina's case suggests that Japanese input using *roma-ji* could be an obstacle for Japanese learners when they use Internet applications.

Absence of nonverbal cues.

The second obstacle indicated by the participants seemed to result from the absence of physical co-presence. Many studies regarded this characteristic of CMC as an advantage, because it reduces learner's anxiety caused by the sense of being seen and facilitates learners' production (Beauvois, 1999; Kelm, 1992; Kern, 1995). Although the participants agreed with this claim, they also showed their strong belief that face-to-face communication is essential for foreign language learning and considered being unable to see their interlocutors as a negative aspect. In the interview, Nina stated, "I want to see [someone's] face [when I communicate]. […] I can't see eyes [on the computer, so I can't tell if people tell the truth]" (Interview #1, Sept. 10; translated from Japanese). Similarly, Allison and Jeff emphasized the importance of nonverbal cues for communication that are lacking in e-mail:

> If we are face-to-face, man-to-man, meaning is understood? If it's e-mail, we are solely reading. We sometimes don't know that person's attitudes and so on, do we? […] Often feelings are expressed on the face, by body language, and so on. If you can't see them, you don't know.

(Jeff, Interview #1, Sept. 18; translated from Japanese)

> [Oral communication and computer-based communication are] a little bit different, don't you think? [In e-mail] I can't hear anything, just read. And I can't see body languages, either. So ways to communicate are a little different. [...] Relying only on computers, if you rely on it, I think it is bad. [...] Relationships with others collapse.
> (Allison, Interview #3, Nov. 27; translated from Japanese)

With regard to this issue, it is noteworthy that Allison, who actively uses Internet applications for her Japanese language learning, resulted in a negative shift by .25 (4.0 to 3.85) in terms of the mean score on the questionnaire, while Jeff's mean moved positively (3.0 to 3.725), and Nina's mean resulted in very small decrease (4.1 to 4.025). This negative shift may mirror her emphasis on face-to-face communication for successful Japanese language learning. That is, participating in this study made her realize the essential role face-to-face interaction plays in communication, resulting in the slight negative change in her overall attitudes toward CMC.

Insufficient corrective feedback.

The last obstacle that emerged from the participants' experiences is related to error corrections. In e-mail exchanges in which "you just basically carry on the conversation" (Jeff, Interview #3, Nov. 28), learners' errors are often left as they are without any corrective feedback, which seems a disservice to learners who are still developing their linguistic knowledge in the target language. For instance, Allison said:

> Well... When I look at my classmates' Japanese and my Japanese, everyone seems to make mistakes. It doesn't look like Japanese [written by native speakers]... Everyone's, mine in particular. So, when I make a mistake, I want it to be corrected.
> (Interview #2, Oct. 23; translated from Japanese)

Jeff also remarked, "You write and you don't know where you're making mistakes, sometimes. That's the only, real drawback" (Interview #3, Nov. 28).

As learners, it is natural for them to want their errors to be corrected so that they can

improve their accuracy in Japanese. However, error correction often hurts learners' self-image and makes them feel that they are negatively evaluated. Fear of negative evaluation is considered to be an anxiety-provoking factor (Aida, 1994), which discourages learners from using the target language. In this case, the issue is when and how to correct errors, if necessary, without stopping the flow of communication and provoking anxiety. With regard to error correction in e-mailing, Jeff suggested a possible solution to how errors in e-mail exchanges should be corrected: "[Teachers] go through email…and see if there is consistent mistake and maybe [correct it]... once in a while" (Interview #3, Nov. 28). That is, he suggests that only when teachers see learners repeatedly make the same error, they should draw the learners' attention to it later, outside of the group conversations. Kelm (1998) approached error correction in a similar way to Jeff's suggestion and succeeded in raising his students' awareness towards the importance of accuracy in grammar.

Concluding Remarks

Two Sides to the Story: Advantages and Obstacles of Internet Applications

The participants' experiences using the Web and e-mail give us insights into both potential advantages and obstacles when these Internet applications are used for Japanese language learning. The participants suggested that the Web and e-mail can enrich Japanese learners' experience effectively. Japanese learners can read texts available on the Web and discuss them with their classmates, learners of Japanese from other schools, and/or native speakers of Japanese in Japan via e-mail. At the same time, they also identified such potential obstacles as the difficulty associated with typing Japanese, the lack of non-verbal cues in the case of using e-mail for communication, and the problem of not getting enough error correction.

Looking at these advantages and obstacles side by side, an interesting picture begins to

take shape: These potential advantages and obstacles seem to result from the same characteristics of Internet applications, particularly properties inherent in e-mail. This is illustrated in Table 3.

Table 3

Contrast between Educational Advantages and Potential Obstacles with Their Sources

	Educational Advantages	Potential Obstacles
No Need to Write by Hand	- Easy to use *kanji* (e.g., only recognition is required)	- Easy to forget how to write *kanji* - Input methods are complicated (i.e., three steps are required)
Little Restriction on Time and Location / Text-based Communication	- Being able to get in touch with people regardless of geographical distance - More opportunities to practice the target language outside of the classroom - No time pressure - Reduced anxiety of public speech	- Lack of physical co-presence - Missing non-verbal cues available in face-to-face communication - Difficulty in error correction

The first property that seems to bring conflicting results is writing on the computer. In writing, the use of computers lightens Japanese learners' burden of *kanji* since Japanese input methods give a list of possible of *kanji* combinations. Thus, unlike handwriting, the learners do not have to memorize how to write *kanji*, but only need to recognize and choose the correct combination from the given list. However, because they focus on recognition rather than production, the learners easily forget the details of *kanji* such as stroke orders. In addition, as can be seen in Nina's comments, typing romanized Japanese or Japanese using the English alphabets can be arduous, because most learners are usually encouraged to write using the Japanese syllabaries (*hiragana* and *katakana*), not in romanization. When they type, thus, they often make errors in spelling double consonants, long vowels, and so on. Until they get accustomed to the input method prescribed by the program, typing may be a major obstacle and

can easily frustrate the learners.

Another property which is particularly relevant to e-mail and other Internet-based communication is asynchronous, text-based communication. The participants' accounts suggest that it can alleviate learners' anxiety because they can have enough time to think and physically "hide" themselves behind the text from others. Convenience of "any time and anywhere" provided by e-mail also enables learners to practice using Japanese more outside of the classroom. However, because of the same characteristics, e-mail lacks immediacy and non-verbal cues which are available in face-to-face conversations. The lack of paralinguistic cues may make the learners feel anxious about losing important information needed to communicate successfully. Furthermore, the more opportunities they have to produce, the more likely they are to make errors. Nevertheless, the communicative aspect of e-mail may not sufficiently provide corrective feedback which learners at any proficiency level seem to need.

The problem of not getting enough feedback is also relevant to asynchronous communication. In face-to-face communication, learners can notice their errors through the immediate signs of communication breakdown (e.g., their interlocutors look puzzled, ask questions about what they said, and so on). In asynchronous, text-based communication, the learners have to wait for such feedback until they receive a reply. The possible long wait before receiving feedback can be a disadvantage.

The contrasts shown in Table 3 suggest an important reminder for both instructors and learners of Japanese: both positive and negative aspects of Internet applications need to be carefully considered so that instructors and learners can make sound decisions regarding the use of Internet applications for Japanese language learning. Learners' experiences examined in this study indicate that whereas Internet applications possibly serve to enhance learning experiences,

they can also be a source of problems. Kern's (1995) conclusion that "questions about the "effectiveness" of *InterChange* should be framed therefore in terms of particular goals" (p. 470) seems relevant to the conclusion of this study. In other words, this study suggests that it is necessary to analyze what currently available Internet applications can do and to utilize them if goals are more effectively achieved with the Internet than without it.

Having said that, rapid advancement of computer technologies may allow Internet applications to overcome their current obstacles in the near future. In fact, there is already such development in technologies. For instance, Hatasa (2001) has developed a new Japanese input method that guesses the intended input from learners' incorrect input and prompts possible *kanji* with their correct spellings. This system gives the learners feedback by displaying reading (i.e., *hiragana* input before changing to *kanji*) in parentheses after *kanji*. Since the learners have to delete the correct spelling in parentheses manually, it is expected that they will eventually learn how to type to avoid manual deletion (Hatasa, personal communication on June 16, 2001).

The lack of physical co-presence can be compensated by the Internet-based videoconferencing applications such as *CUSeeMe* which enables synchronous, distance communication with video, sound, and text (Anai, 2000). Anai (2000) reports a successful project in which learners of Japanese in the U.K. were engaged in weekly *CUSeeMe* sessions with native speakers in Japan, pointing out that Internet-based videoconferencing such as *CUSeeMe* provides learners with an opportunity for not only synchronous, authentic communication with images of interlocutors, but also for autonomous learning with texts of their conversations that can be used to monitor their language use. When the quality of these tools is improved and similar tools become more accessible, the possibility of the Internet applications for Japanese language teaching and learning will be expanded.

In addition to overcoming weaknesses, advancement of technologies, particularly such emerging technologies on the Web as SMIL (Synchronized Multimedia Integration Language) seems promising as a useful tool for foreign language learning including Japanese. SMIL is a specific code that "provides a means for synchronizing text or captions with streaming media" (Godwin-Jones, 2001, p. 14). In viewing video materials, the use of captioning or on-screen target language subtitles is believed to facilitate learners' comprehension of the materials (Garza, 1991). Though SMIL is not as accessible as HTML (Hyper Text Markup Language) at this time, it will possibly make the Web more useful and beneficial for Japanese language learning in the future.

Limitations of the Present Study and Suggestions for Future Research

Although the present study shed some light on how Internet applications can serve as enhancement for Japanese language learning, it should be noted that this study is exploratory and examined the experiences of only three learners of Japanese. It is necessary to replicate this study on a larger scale in order to obtain a clear picture of learners' learning experience using Internet applications. Moreover, the findings of this study raise issues to be investigated further, such as the issue of error correction in CMC including e-mail. In addition to these issues, future research should examine how the implementation of the Internet influences learners' language development in Japanese in order to see whether or not the Internet helps their Japanese language learning. Such studies will help us learn how we can make the most use of ever-progressing technologies.

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Footnotes

[1] These assessments were based on the guideline for the ACTFL Oral Proficiency Interview (OPI) and unofficially provided by a faculty member of the university who is a certified OPI tester and knows all the participants. Thus, they should be considered as rough estimates of their proficiency levels.

[2] More detailed information including the URL of each resource is listed in Appendix A.

[3] The participants used an old version of Reading Tutor. The current version became available in April, 2001.

[4] Global IME provides Japanese fonts with English Microsoft Windows and enables Japanese applications to run on it. It is compatible with Microsoft Windows 95/98/NT/ME and is downloadable for free of charge at http://www.microsoft.com/Windows/ie/Features/ime.asp. Microsoft Windows 2000 should use MS IME 2000 which is built into the operating system. I would like to thank Keiko Schneider for the information related to Microsoft Windows and Global IME.

[5] Chikamatsu (1998) modified Warschauer's (1996) questionnaire for learners of Japanese by asking learners' familiarity with computers in Japanese in addition to English and by adding items specifically related to Japanese language learning such as kanji input. I would like to thank Dr. Nobuko Chikamatsu for kindly providing her student survey for the present study.

[6] Asynchronous Learning Networks (ALN) is a type of learning that "combines self-study with substantial, rapid asynchronous interactivity with others" (Asynchronous Learning Networks, n.d.). For more detailed information about ALN, visit http://www.aln.org.

[7] There are at least two possibilities for *sentaku* to be written in Japanese with *kanji*. One means "selection," and the other "laundry.

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Appendix A

List of the URLs used for e-mail discussion in this study (in chronological order use)

1. Rikai.com: http://www.rikai.com
2. Reading Tutor: http://language.tiu.ac.jp
3. Asahi Shimbun serial articles on the city news page "What would you do if it were you?: Intra-office wedding" [Asahi Shimbun dai san shakaimen rensai "Dosuru anata nara…: Shanai kekkon"

   Part 1. Energy needed [Sono 1 Powaa irundesu] (February 19, 2000): http://ntt.asahi.com/532/dousuru/000219.html

   Part 2. Retiring due to marriage: the 100-year tradition [Sono 2: Kotobuki taisha: 100 nen no kankou] (February 2, 2000): http://ntt.asahi.com/532/dousuru/000226.html

   Part 3. Neighbor is lover when realized [Sono 3 Kigatsukeba rinjin wa koibito] (March 4, 2000): http://ntt.asahi.com/532/dousuru/000304.html

   Part 4. Work, shaking [Sono 4 Shigoto, gurari] (March 11, 2000): http://ntt.asahi.com/532/dousuru/000311.html

   Part 5. Celebration by the whole company [Sono 5 Shukufuku, sha o agete] (March 18, 2000): http://ntt.asahi.com/532/dousuru/000318.html
4. Yomiuri Shimbun Evening Edition in Osaka featured article

   The Japanese language is changing because it is alive: "ra-omission" language accepted, as the world changes [Ikiteiru kara kawaru nihongo: "ra nuki" kotoba younin, yo ni tsurete] (September 15, 1995): http://www.yomiuri.co.jp/yomidas/konojune/95/95r9.htm
5. Nowadays young Japanese people's language that may be bothersome [Ki ni naru imadoki

no wakamono kotoba]: http://www.noda-h.ed.jp/nodatei/class/gendaigo/wakakoto.html

6. Yomiuri Shimbun article (October 30, 2000): http://www.yomiuri.co.jp/newsj/ic30i204.htm (no longer available)
7. National Museum of Japanese History Page for children and parents 2: Let's explore Japanese history [Kokuritsu rekishi minzoku hakubutsukan kodomo to oya no peeji 2 nihon no rekishi o mite miyou]: http://www.rekihaku.ac.jp/kodomo/2/mitemiyo.html
8. KEATON Live Guide: Internet Broadcasting Navigator [KEATON raibu gaido: intaanetto housoukyoku nabigeetaa]: http://www.keaton.com/topsite.html

Appendix B

Questionnaire: Student Survey

Age _____

Sex Male Female

Country of birth _____

Native language _____

Year in school _____

Name of course _____ _____ (the Japanese course you are currently taking)

A. Please rate your typing ability in English.
poor___ fair___ good___ very good___ excellent___

B. Please rate your typing ability in Japanese.
poor___ fair___ good___ very good___ excellent___

C. Please rate your knowledge of computers in general.
poor___ fair___ good___ very good___ excellent___

D. Do you have a computer at home?
yes___ no___ If yes, for how long?:_____

E. How you ever used a computer to do the following things (in English)?:
Word processing: a lot___ a little___ never___
E-mail: a lot___ a little___ never___
World Wide Web: a lot___ a little___ never___

F. The following are the questions about computer use in **JAPANESE**. For each question, please circle a number (1-5) according to the following description.

1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree

	Strongly Disagree				Strongly Agree
1. I can write better Japanese when I write on computer than by hand.	1	2	3	4	5
2. Revising my writings is a lot easier when I write on computer.	1	2	3	4	5
3. I enjoy writing Japanese by computer more than by hand.	1	2	3	4	5
4. I enjoy seeing the things I write in Japanese printed out on computer.	1	2	3	4	5
5. Writing Japanese by hand saves time compared to writing by computer.	1	2	3	4	5

	Strongly Disagree				Strongly Agree
6. I would enjoy using the computer in Japanese to communicate with people in Japan.	1	2	3	4	5
7. I would enjoy using the computer to communicate in Japanese with my classmates.	1	2	3	4	5
8. I am more afraid to contact people by e-mail than in person.	1	2	3	4	5
9. I would enjoy using the computer in Japanese to communicate with my teacher(s).	1	2	3	4	5
10. If I have a question or comment, I would rather contact my teacher in person than by e- mail in Japanese.	1	2	3	4	5
11. Japanese E-mail helps people learn from each other.	1	2	3	4	5
12. An advantage of e-mail is you can contact people any time you want.	1	2	3	4	5
13. Writing to others by Japanese e- mail helps me develop my thoughts and ideas.	1	2	3	4	5
14. Using Japanese e-mail and the Internet makes me feel part of a community.	1	2	3	4	5
15. Using Japanese e-mail and the Internet is a good way to learn more about different people and cultures.	1	2	3	4	5
16. Communicating by e-mail is a good way to improve my Japanese.	1	2	3	4	5
17. Learning to use a computer gives me a feeling of accomplishment.	1	2	3	4	5
18. Writing in Japanese by computer makes me more creative.	1	2	3	4	5
19. Using a computer gives me more chances to read and use authentic Japanese.	1	2	3	4	5
20. I want to continue using a computer in my Japanese classes.	1	2	3	4	5
21. Using a computer in Japanese is not worth the time and effort.	1	2	3	4	5
22. Using a computer in Japanese gives me more control over my learning.	1	2	3	4	5
23. I enjoy the challenge of using computers in Japanese.	1	2	3	4	5
24. Learning how to use computers in Japanese is important for my career.	1	2	3	4	5
25. I can learn Japanese more independently when I use a computer.	1	2	3	4	5
26. Computers keep people isolated from each other.	1	2	3	4	5
27. I can learn Japanese faster when I use a computer.	1	2	3	4	5
	Strongly Disagree				Strongly Agree

	Strongly Disagree				Strongly Agree
28. Using a computer gives me more chances to practice Japanese.	1	2	3	4	5
29. Computers are usually very frustrating to work with.	1	2	3	4	5
30. Computers make people weak and powerless.	1	2	3	4	5
31. I can use more kanji when I write Japanese on computers than when I write Japanese by hand.	1	2	3	4	5
32. I can write Japanese faster by hand than on computers.	1	2	3	4	5
33. I can write more and longer sentences in Japanese by hand than on computers.	1	2	3	4	5
34. Using Japanese e-mail makes me use words/expressions I have learned in class.	1	2	3	4	5
35. I can learn a lot about Japanese people and culture through Japanese e-mail.	1	2	3	4	5
36. Using computer makes me more careful in grammar in writing.	1	2	3	4	5
37. Japanese e-mail gives me a chance to learn stylistic differences (e.g., formal vs. casual).	1	2	3	4	5
38. I can use some expressions which I did not learn in class through my e-mail.	1	2	3	4	5
39. Using computers is too much trouble for learners of Japanese.	1	2	3	4	5
40. Using computer slows me down in writing in Japanese.	1	2	3	4	5
	Strongly Disagree				Strongly Agree

G. Write the three things you like(d) the most about Japanese e-mail in terms of technical aspects.

1.

2.

3.

H. Write the three things you like(d) the least about Japanese e-mail in terms of technical aspects.

1.

2.

3.

I. Write the three things that you like(d) the most about Japanese e-mail in terms of learning the Japanese language.

1.

2.

3.

J. Write the three things that you like(d) the least about Japanese e-mail in terms of learning the Japanese language.

1.

2.

3.

Thank your for your cooperation.

Appendix C

Sample Interview Questions

Background

1. When did you start studying Japanese?
2. Have you ever been to Japan before? If yes, how long? If not, do you want to go to or live in Japan in the future?

Motivation toward learning Japanese

1. Why did you decide to take the fourth-year Japanese course?
2. Why did you decide to participate in this study?

Attitudes toward learning Japanese

1. What do you enjoy in learning Japanese the most? The least?

Attitudes toward using a computer to learn Japanese

1. Have you ever used word processing, e-mail, chat and/or the World Wide Web in Japanese? If yes, how often? Who do you send e-mail to? What kind of Web sites have you visited?
2. What do you think about using technologies such as word processing, e-mail, chat, and/or the WWW in your Japanese classroom?
3. What positive/negative experiences do you think you would have using e-mail in learning Japanese? Please explain. (in the first interview)
4. What positive/negative experiences have you had so far in using e-mail in Japanese? Please explain. (in the second and third interviews)
5. Have your opinions about using e-mail to learn Japanese been changed from the last time? (in the second and third interviews)